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Phonemicisation vs. phonologisation

Voiced fricatives in Old English and Brythonic

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1 Context

1.1 Introduction

Outline of argument

- Strict (naïve) contrastivist hypothesis: if two things are predictably distributed, the distinction is phonologically irrelevant
- Voiced fricatives in Old English and Brythonic Celtic
 - Are (by and large) predictably distributed
 - Plenty of evidence that the distribution is phonologically relevant
- Phonologisation: creation of phonologically distinct representations
- Phonemicisation: establishment of unpredictable distribution
- Phonologisation precedes phonemicisation: ‘allophony’ → marginal contrast → contrast

Our examples

- Lenis fricatives in Old English
 - Arise from fortis/H/[spread glottis] fricatives through *foot-medial* lenition

- Largely predictable distribution in Old English, clear phonemicisation by moderately early Middle English
- Voiced fricatives in Brythonic Celtic
 - Arise from voiced stops through phrase-level intervocalic lenition
 - Largely predictable distribution early on, major changes in prosodic structure lead to phonemicisation
- But in both cases:
 - Distribution is predictable but sensitive to phonology: it is enforced by phonological computation (Hall & Hall, Kim this conference)
 - Voiced fricatives survive secondary split, which presupposes distinct representations (Dresher this conference)

1.2 Some assumptions

The Contrastivist Hypothesis

- In its purest form, the CH is about *representations*
- What about computation?
- Most phonological theories on the market are powerful enough to coerce arbitrary representations into predictable distributions
- Can the CH be reconciled with this?
- Yes: phonemicisation is a fact about surface distributions, not about what the phonology works with (cf. Scobbie 2007)
- Fruitful to distinguish phonemicisation and phonologisation

What does phonology know?

- Standard position going back to Chomsky and Halle (1968) if not Jakobson, Fant, and Halle (1951): everything language-specific is phonological, phonetics is universal and not interesting
- Under attack from several perspectives recently
- We assume phonology exists but there is a non-trivial division of labour: ‘Is X a *phonological* phenomenon?’ is an interesting question (Morén 2006; Hale, Kissock, and Reiss 2007; Odden 2013)
- Under this approach, ‘When does X become phonological?’ is also an interesting question
- And how do we know?

The life cycle

- It is uncontroversial that phonological patterns can arise as a grammaticalisation of (predictable) phonetics (e. g. Hyman 1976; Janda 2003; Bermúdez-Otero 2007; Bermúdez-Otero and Trousdale 2012)
- If so, we expect the early stages of phonologisation to produce predictable distributions or at best marginal contrasts (Scobbie and Stuart-Smith 2008; Bye 2013)
- Further, historical phonology exists: phonological (but not necessarily phonemic) distinctness is important in phonological change

2 Fricative lenisisation in Old English

2.1 Phonemicisation in English

The textbook position

- ☞ We set dorsals aside here: ‘[x]...no longer existed’ in the environments relevant here (Hogg 1992, p. 276)
- It is widely accepted that OE had *one* distinctive series of fricatives, with allophonic voicing in ‘intervocalic’ position
- ☞ Laker (2009) dissents, but Minkova (2011) provides a compelling defence of the *phonological predictability* of fricative ‘voicing’

Textbook OE phonemic inventory

From Lass (1987)

Manner	Labial	Dental	Alveolar	Postalveolar	Palatal	Velar
Stop	p(:) b(:)		t(:) d(:)			k(:) g(:)
Fricative	f(:)	θ(:)	s(:)	ʃ		x(:)
Affricate				tʃ(:) dʒ(:)		
Nasal	m(:)		n(:)			
Liquid	w		l(:), r(:)		j	

Textbook Middle English

- Middle English: voiced fricatives in French loans, degemination of intervocalic fortis fricatives and apocope create a contrast
- Again Lass (1987)

Manner	Labial	Dental	Alveolar	Postalveolar	Palatal	Velar
Stop	p b		t d			k g
Fricative	f v	θ ð	s z	ʃ ʒ		x
Affricate				tʃ dʒ		
Nasal	m		n			
Liquid	w		l, r		j	

The sequence of events

- What conditions in Old English allowed the ME contrast to develop?
- ☞ Standard answer: French borrowings, degemination etc. were the *cause* of phonemicisation
 - Many borrowings with initial [v] (*veal, very, vile, victory...*), some also with initial [z]: *zeal, zodiac...*
 - Creation of medial contrast through degemination: OE *o[f:]rian*, ME *o[f]er*
 - Creation of final contrast through apocope: OE *lu[v]u*, lME *love* [lo:v]

Unanswered questions

- We find the form *fers* from Latin *versus* (e. g. in Ælfric, Orm) — sometimes taken to be evidence for fricative voicing but could it be a nativised loan? And if so, why didn't ME just carry on like this?
- Why were the other not constrained by the synchronic restrictions on fricatives? Why not *offrian* → ***over*, *lufu* → ***lof*?
- We suggest: fricative lenisation is *phonological* already in Old English (cf. Moulton 2003)

2.2 Phonologisation in Old English

The distribution

- The basic rule is Intervocalic Voicing 101
- $\left[\begin{array}{c} C \\ +\text{cont} \end{array} \right] \rightarrow [+voi]/[+voi] __ [+voi]$ (e. g. Hogg 1992)
- Examples
 - *wul*[f] 'wolf' but *wul*[v]*as* 'wolves'
 - *hu*[s] 'house' but *hu*[z]*ian* 'to house'
 - *bæ*[θ] 'bath' but *bæ*[ð]*ode* 'bathed'
- This, however, is not the whole story

Phonological factors

- How do we know that phonology is involved?

☞ The distribution is exquisitely sensitive to *phonological* factors, i. e. it is *phonologised*

1. Blocking in gemination referred to above: expected from a phonological perspective (Honeybone 2005b), gemination in OE is phonological because geminates count for weight
2. Sensitivity to metrical structure: voicing ‘in the onset of weak syllable in the trochaic foot’ (Minkova 2008, 2011)

In particular, there is no voicing between unstressed nuclei (Fulk 2001, 2002):

- *darō*[θ]a ‘spears (gen. pl.)’
- *earfo*[θ]u ‘hardship (acc. pl.)’

3. Certain types of boundaries block voicing too: *trēo*[f]æt ‘faithful’, *weor*[θ]lēas ‘worthless’ (Takahashi 1995; Fulk 2002)

2.3 The phonology of fricatives

Summary

- Old English phonology manipulated distinct representations for voiceless and voiced fricatives, even though the result is (almost) complementary distribution of the two categories
- This situation must have appeared fairly early on and persisted for a long time
- Changes in the ME period were not the cause of the phonologisation but instead were enabled by it
- Essentially the same result as that of Moulton (2003)
- But we take a different view of the pattern

Specification of fricatives

- We follow Honeybone (2002, 2005a, 2012); Spaargaren (2009) in assuming voiceless fricatives in Old English must be specified for H (|spread|, |fortis|, whatever)

☞ Activity in progressive assimilation: /kyss-(i)de/ → [kyste] ‘kissed’

☞ Activity in regressive assimilation: /med-scead/ → [metsceat] ‘reward’ (Spaargaren 2009)

☞ Southern English Fricative Voicing: lenition as loss of H: OE *fader*, southern ME *uader* ‘father’ (Honeybone 2005a, 2012)

The importance of lenition

- Moulton (2003) assumes something similar, but he also suggests that lenis fricatives are specified for [+voice]
- We disagree: no evidence for phonological activity of [voice] in fricatives (see especially Spaargaren 2009)

Conclusion for Old English

- The pattern makes good sense as a phonological one
- Contrast Moulton (2003, 157): the situation is ‘curious’ and ‘contrary to all expectations given the predictability of the feature’
- Indeed we do not have to look far to find a *comparandum*

3 Voiced fricatives in Brythonic

3.1 Basics

Fricatives in mediæval and modern Brythonic

- Welsh: [v ð (ɣ)] contrast with [f θ χ]
- Cornish: [v ð z (ɣ)] contrast with [f θ s x]
- Breton: [v ɸ z ʒ] contrast with [f s x:/h ʃ], though many dialects lack [ɸ]
- Seems pretty unremarkable except for the Breton
- Ample evidence for the phonological character of the contrast through alternations

Some phonological processes

- Initial mutation: lenition
 - /m b/ → /v/ (WCB)
 - /d/ → /ð/ (WC), /z/ (B)
 - /g/ → /ɣ/ with later developments (WCB)
- Final devoicing: Cornish and Breton
 - Cornish, Breton dialects with no v/ɸ contrast: unremarkable
 - Breton dialects with tripartite v/ɸ/f contrast: /ɸ/ → /f/, /v/ → /o/

- More initial mutation: ‘new lenition’ (Breton, probably Cornish)
 - /f/ → /f̥/ where available, else [v]
 - /s/ → /z/
 - /ʃ/ → /ʒ/

The connection with quantity

- Best seen in Breton
 - Restrictions following stressed vowel: only two patterns allowed, with alternations
 - Long vowel → voiced fricative
 - Short vowel → voiceless fricative
- (1) Central Breton (Wmffre 1999)
- | | | | |
|----|------------|--------------------|--------------|
| a. | [ˈkoːz] | <i>koz</i> | ‘old’ |
| b. | [ˈkosəh] | <i>koshoc’h</i> | ‘older’ |
| c. | [aɣ ˈhosə] | <i>ar c’hoshañ</i> | ‘the oldest’ |
- Similar but not identical to metrical restrictions in West Germanic (OE above; Dutch according to van Oostendorp 2003)

3.2 Phonemicisation in Brythonic

The appearance of voiced fricatives

- The source of voiced fricatives is the lenition of voiced stops (e. g. Matasović 2009)
- (2)
- | | |
|----|--|
| a. | Middle Welsh <i>lladdu</i> [ð], Breton <i>lazhañ</i> [z/h/Ø], Middle Cornish <i>lathe</i> [ð] ‘kill’, PC * <i>slad-</i> (OI <i>slaide</i> [ð] ‘killing’) |
| b. | Welsh <i>afon</i> [v], Middle Breton <i>auon</i> [v], Cornish <i>auon</i> [v] ‘river’, PC * <i>abon-</i> (OI <i>a(u)b</i> [β]) |
- Basic sound change: singleton stop → fricative / V_

Phonemicisation in Brythonic

- Early stage: no surface contrast between voiced stops and fricatives
- ☞ Fricatives postvocally, stops postconsonantly and in gemination
- Date uncertain
 - Early, but uncertain, date (e. g. Sims-Williams 1990; McCone 1996): common to Brythonic and Goidelic and possibly also Celtiberian (Villar 1993); solves some issues around borrowings into Irish (see also Schrijver 2009 for a reevaluation of the Brythonic/Goidelic relationship)
 - Later date (Jackson 1953: second half of 5th century): lenition affects Latin stops (W *meddyg* ‘doctor’ ← MEDICU), therefore postdates the borrowing

Triggers of Brythonic phonemicisation

- Possible triggers of phonemicisation:
 - Syncope (mid 6th century according to Jackson 1953) creates non-postvocalic fricatives: PB **Ōrbo-genos*, Old Welsh *Urbgen*, Middle Welsh *Urien* ([j] ← **[ɣ]*)
 - Simplification of voiced geminates: W *aber* ‘estuary’ from **ab-bero-* ← *ad-bero-*. Date unclear but between lenition and ‘provection’ (devoicing of geminate stops arising through syncope, mid to late 6th century): OW *Cattegirn* from **Cadədiyernos* ← *Catu-tigernos*
- But what about phonologisation?

3.3 Phonologisation in Brythonic

Phonologisation in Brythonic

- As with OE, we suggest phonologisation precedes phonologisation by a long shot
 1. Productive phonology knows about the /v ɔ̯ ɣ/ ~ /b d g/ contrast but enforces the predictable distribution
 2. The existence of mutations presupposes a postlexical across-the-board phonological process à la Bermúdez-Otero (2007); Bermúdez-Otero and Trousdale (2012)
 3. Secondary split presupposes distinct representations (e. g. Kiparsky 1995; Janda 2003; Bermúdez-Otero 2007; Drescher this conference)

Systematic restrictions

Manner	Labial	Coronal	Dorsal
Voiceless singleton stops	p	t	k
Voiceless geminate stops	pp	tt	kk
Voiced singleton stops	#b	#d	#g
Voiced geminate stops	bb	dd	gg
Voiceless fricatives		s(s)	
Voiced fricatives	(*#)v	(*#)ɔ̯	(*#)ɣ

Phonology knows about the contrast

- We propose that the positional restrictions on [b d g] vs. [v ɔ̯ ɣ] are enforced by phonological computation
- ☞ The absence of [b d g] in the lenition position (however defined) is due to a phonological rule
- No real laryngeal contrast in fricatives: /s (h)/ and /v ɔ̯ ɣ/ are not a phonological class

- The fricatives are defined only by manner: laryngeal contrast redundant
 - Across-the-board deletion of stop component blocked syllable-initially, in gemination
- ☞ Essentially same story as for OE above

Effects of the rule

- As with OE *fers*, borrowings follow the native pattern
 - Latin MEDICU becomes W *meddyg* because of a *synchronic* restriction on surface [d], not because it is borrowed pre-lenition
- ☞ Contra Jackson (1953)
- Lack of laryngeal contrast means /v ð ɣ/ are effectively sonorants (Iosad 2012; Botma and van 't Veer, forthcoming)
 - Welsh /v ð/ are inert in laryngeal assimilation
 - Breton [v] (when distinct from [f]) shows sonorant-like behaviour (cf. above)

The inheritance of the rule

- Voiced fricatives are involved in initial mutation
 - The source of initial mutation is the application of lenition across word boundaries
 - Consistent with the life cycle of phonological processes (Bermúdez-Otero 2007; Bermúdez-Otero and Trousdale 2012; Ramsammy, forthcoming)
 - Phonetic tendencies stabilise and become phrase-level *phonological* patterns
- ☞ Mutations cannot have appeared without there having been a phonological rule outputting the right phonological symbols

The diachrony of the rule

- Phonologisation must precede secondary split (Kiparsky 1995; Janda 2003; Bermúdez-Otero 2007)
 - Voiced fricatives survive syncope to produce forms like *Urien*
 - Voiced fricatives survive domain narrowing when lenition stops to operate at the phrase level
 - Voiced fricatives become distinct phonological representations prior to changes in conditioning environments
- ☞ Same account in English for the preservation of [f] in *offer* and [v] in *love*

4 Discussion

4.1 Fricative voicing as lenition

Cross-linguistic similarities

- Old English
 - Phonologised distinction with a prosodically sensitive distribution
 - Weakly unconditioned process: fricative lenition ‘everywhere except’
 - Survives changes of context and phonemicises
 - Changes in conditioning: Southern English Fricative Voicing
- Brythonic
 - Phonologised distinction with phonologically defined distributions
 - Weakly unconditioned process: stop lenition ‘everywhere except’
 - Survives changes of context and phonemicises
 - Changes in conditioning: Breton and Cornish ‘new lenition’
- Franconian (not discussed here for reasons of space)
 - Clearly phonological (phonologised *and* phonemicised) distinction
 - Initial fricative voicing: a weakly unconditioned process?

Do we need contact explanations?

- These similarities have sometimes been explained by contact
 - Continental Germanic → English (Bennett 1955)
 - Brythonic → Old English (Laker 2009)
 - English → Cornish & Breton (Tristram 1995)
- Arguments against
 - Chronology of relevant sound changes (e. g. Nielsen 1994)
 - Chronology of phonemicisation (Minkova 2011)
- Our argument: voiced fricatives in English and Brythonic arise via an utterly ordinary process of lenition
- However, there are important differences too
 - English: loss of H; Brythonic: loss of ?
 - Different sensitivity to metrical structure
- Contact is an answer in search of a question

4.2 Theoretical consequences

Fixing the Contrastivist Hypothesis

- Cases such as that discussed here appear to fly in the face of the Contrastivist Hypothesis
- Should we abandon it?
- Probably not yet: a theory of phonology includes both representation and computation, the effects of the latter do not necessarily influence the former (Hall & Hall this conference)
- However, it does seem that a different formulation is in order

The Contrastivist Hypothesis redux

- The basic insight of the CH is that the set of phonologically active features is not larger than the set of features used to distinguish between a language's segments
- But the set of phonological segments can now be larger than the set of unpredictably distributed segments
- What the CH really says is *no redundant features*
- Once we've identified the set of phonological segments (via participation in truly phonological processes) and assigned a set of minimally contrastive specifications (say, via the Successive Division Algorithm; Dresher 2009), we may not assign more features
- This version of the CH still has content, but accommodates our facts

Conclusions

- Both Old English and Brythonic Celtic acquired voiced fricatives through a *phonological* process of lenition
- In both languages the phonological pattern produced (almost) predictable surface distributions for voiced fricatives for a fair length of time
- This does not falsify the Contrastivist Hypothesis, but follows from the existence of the phonological life cycle

Thank you!

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